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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,552	02/20/2004	Joseph F. Hicklin	MWS-111	7454

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EXAMINER	
SKOWRONEK, KARLHEINZ R	
ART UNIT	PAPER NUMBER
1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/783,552	HICKLIN ET AL.	
	Examiner	Art Unit	
	KARLHEINZ R. SKOWRONEK	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 May 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) *6,7,12,13,18,19,24,25,30,31 and 36* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 20 May 2008 has been entered.

Claim Status

Claims 1-39 are pending.

Claims 6-7, 12-13, 18-19, 24-25, 30-31, and 36 are withdrawn as being directed to a non-elected invention.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 have been examined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 rejected under 35 U.S.C. 102(a) as being anticipated by Sauro et al. (Omics: A Journal of integrative Biology, Vol. 7, No. 4, 2003, Dec 2003) and evidenced by Hucka et al. .

The claims are directed to a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

Sauro et al. show a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface (GUI) to generate a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior (figure 11). The system implemented by Sauro et al. integrates several stand-alone programs in a way such that the inputs and outputs of each program can be exchanged with the other programs, i.e. the programs are SBW-compliant or enabled. Sauro et al. shows the integration of the programs of JDesigner, Jarnac, and SBW Meta-tool (p. 365, Applications). In figure 11 of Sauro et al, the elements of modeling component having a GUI providing means for accepting user input via a tool palette to generate a block diagram of a plurality of related chemical reactions that make a biological system. The figure also depicts an analysis

environment displaying the dynamic behavior of the biological system, and a simulation engine. The system of Sauro et al. integrates several different programs as components and facilitates the intercommunication of the programs to provide a dynamic, high performance framework for modeling biological systems and reaction pathways (p. 355). Figure 12 shows that in addition to depicting the model graphically, the model is also displayed as a table. Figure 12 shows screen shot of Jdesigner interfaced with METATOOL. Sauro et al. shows JDesigner acts as a model editor from which users can initiate simulation and METATOOL analysis (p. 368). In the lower left portion of figure 12, the tabular view of METATOOL displays the modes, sets of enzymes working together at steady state to construct a plausible subpathways, of the reactions representative of the model displayed in graphical format in the center of figure 12. Thus, Sauro et al. shows the adaptation of the tabular view to receive user commands and input to construct the model. Sauro et al. show that the dynamic behavior of the system is modeled using a stochastic computational model (p 355 and 364). User annotations to the graphical and tabular views is inherent to the system of Sauro et al. Evidence is seen in Hucka et al. which shows user annotations of S1 and S2 in the model in SBW- compliant Jarnac and JDesigner (figure 1 and p. 452). Sauro et al. also shows that models are entered in the form of a script stored in SBML level 1. Sauro et al. shows the JARNAC tool is a script based simulation tool using models stored in SBML level 1 (p. 366). The SBML script is another tabular form of a model. Further, Sauro et al. shows that annotations can be added to the SMBL level 1 script (p. 366).

Sauro et al. shows in figure 11 user annotations on the graphical display of the model (fig11 top center).

Response to Arguments

Applicant's arguments filed 20 May 2008 have been fully considered but they are not persuasive. Applicant argues that Sauro et al. does not show a model that is represented in tabular and a graphical view where the tabular view is adapted to receive the user commands and input to construct the model. Figure 12 shows screen shot of Jdesigner interfaced with METATOOLS. Sauro et al. shows JDesigner acts as the model editor from which users can initiate simulation and METATOOL analysis (p. 368). In the lower left portion of figure 12, the tabular view of METATOOLS displays the modes, sets of enzymes working together at steady state to construct a plausible subpathways, of the reactions representative of the model displayed in graphical format in the center of figure 12. Thus, Sauro et al. shows the adaptation of the tabular view to receive user commands and input to construct the model. Applicant argues that Sauro et al. doe not show annotations to the model that are provided by the user. The argument is not persuasive. Sauro et al. shows that models are entered in the form of a script stored in SBML level 1. Sauro et al. shows the JARNAC tool is a script based simulation tool using models stored in SBML level 1 (p. 366). The SBML script is another tabular form of a model. Further, Sauro et al. shows that annotations can be added to the SMBL level 1 script (p. 366). Sauro et al. shows in figure 11 user annotations on the graphical display of the model (fig 11, top center). The rejection is maintained.

Claims 1-5, 8-11, 14-17, 20-23, 26-29, 32-35, and 37-39 rejected under 35 U.S.C. 102(b) as being anticipated by Hucka et al. (Pacific Symposium on Biocomputing Vol. 7, p.450-461, 2002).

The claims are directed to a system computer implemented method and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model, the model represented in graphical and tabular views with the tabular adapted to receive commands and input from a user to construct a model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior.

Hucka et al. show a system, computer-implemented method, and computer program product for improved modeling of a biological system, a biological system being a plurality of chemical reactions, comprising modeling component with a graphical user interface to generate a model, the model represented in graphical and tabular views with the tabular adapted to receive commands and input from a user to construct the model; a simulation engine accepting the model and generating a dynamic behavior for the biologic system; and an analysis environment to display the dynamic behavior (figures 1 and 2). Hucka et al. describe JDesigner, software providing a GUI to accept user commands and data (sect. 5.2). Hucka et al. shows the model is represented in graphical form by describing models can be created visually in JDesigner which saves

the models in SMBL formatted scripts (sect 5.2). The SBML formatted script represents the model in a tabular view. Thus, Hucka et al. shows the model represented and graphical and tabular view where the tabular view is adapted to receive user commands and input ot construct the model. Hucka et al. shows in figure 1 that the model further comprises annotations in the graphical and tabular views. In figure 1 the annotations indicate the pathway components. The figure shows three windows. In the foremost window, Hucka et al. shows the output of the simulation. In the intermediate window depicted in figure 1, Hucka et al. shows a tabular view with the output variables S1 and S2, which are user annotations to the model in Jarnac. In figure 1, the background window is JDesigner, in which is displayed a bifurcated model that shows a path from a first element with the annotation X0 to a second element with the annotation S1. The second element branches to a third element with the annotation X1 and fourth element with the annotation S2. The pathway continues from the fourth element to a fifth element with the annotation X2. Hucka et al. describes the pathway of figure 1 as “the user has created a model in JDesigner” (p. 452). It is reasonable to interpret Hucka et al. describing the user created model to also include the user adding the annotation of S1 and S2 for the second and fourth elements, respectively. Thus by creating a model in JDesigner, annotations are added to the graphic representation of the model as well as to the tabular representation of the model. As shown in figure 1, the modeling component includes a block diagram of related chemical reactions. Hucka et al. show that the simulation engine generates the dynamic behavior of the system using a stochastic computational model (p. 459, sect 5.8-9).

Response to Arguments

Applicant's arguments filed 7 December 2007 have been fully considered but they are not persuasive. Applicant argues that Hucka et al. does not show the representation of the model in a graphical and in a tabular form where the tabular view is adapted to receive user commands and input to construct the model. The argument is not persuasive. Hucka et al. shows the model is represented in graphical form by describing models can be created visually in JDesigner which saves the models in SMBL formatted scripts (sect 5.2). The SBML formatted script represents the model in a tabular view. Thus, Hucka et al. shows the model represented and graphical and tabular view where the tabular view is adapted to receive user commands and input to construct the model. Applicant argues that annotations of S1 and S2 in figure 1 are not provided by a user. The argument is not persuasive. In figure 1, the background window is JDesigner, in which is displayed a bifurcated model that shows a path from a first element with the annotation X0 to a second element with the annotation S1. The second element branches to a third element with the annotation X1 and fourth element with the annotation S2. The pathway continues from the fourth element to a fifth element with the annotation X2. Hucka et al. describes the pathway of figure 1 as “the user has created a model in JDesigner” (p. 452). It is reasonable to interpret Hucka et al. describing the user created model to also include the user adding the annotation of S1 and S2 for the second and fourth elements, respectively. Thus by creating a model in JDesigner, annotations are added to the graphic representation of the model as well as to the tabular representation of the model. The rejection is maintained.

Double Patenting

Response to Arguments

Applicant's arguments, see remarks p. 21, filed 20 May 2008, with respect to the provisional double patenting rejection made over Application No. 10/783,628 have been fully considered. The provisional double patenting rejection made over Application No. 10/783,628 has been withdrawn in view of the terminal disclaimer filed 20 May 2008.

Applicant's arguments, p. 21, filed 20 May 2008, with respect to provisional double patenting rejection made over Application No. 10/783,624 have been fully considered. The provisional double patenting rejection made over Application No. 10/783,624 has been withdrawn in view of the terminal disclaimer filed 20 May 2008.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLHEINZ R. SKOWRONEK whose telephone number is (571) 272-9047. The examiner can normally be reached on 8:00am-5:00pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. R. S./
Examiner, Art Unit 1631

22 August 2008
/John S. Brusca/
Primary Examiner, Art Unit 1631